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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/542,708	04/04/2000	Barry Voroba	129.0010-0101	5256

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EXAMINER

GESESSE, TILAHUN

ART UNIT PAPER NUMBER

2684

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9

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

<b>Application No.</b> 09/542,708	<b>Applicant(s)</b> VOROBA ET AL.	
<b>Examiner</b> Tilahun B Gesesse	<b>Art Unit</b> 2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 26 March 2004.
- 2a)  This action is FINAL.
- 2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4)  Claim(s) 1-42 is/are pending in the application.  
4a) Of the above claim(s) 2,4,5,17-27 and 36-42 is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 1,3,6-16 and 28-35 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4.
- 4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5)  Notice of Informal Patent Application (PTO-152)
- 6)  Other: \_\_\_\_\_

**DETAILED ACTION**

1. This is in response to amendment and argument filed March 24, 2004, in which claims 1,3,6-1628-35 are pending.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,3,6-8,12,14-16,28-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sulavuori et al (5,636,264)"Sulavuori" in view of Holakovszky (WO 99/34576).

As to claims 1,3,12, Sulavuori discloses a portable communication system ((figure 3) for use with a communication apparatus (figures 4A and 4B) having a sound output device (2 of figure 4A), the system comprising: an infrared transmitter apparatus (3), wherein the infrared transmitter apparatus comprises: a microphone (100) to generate an audio signal from received sound input (MIC), at least one infrared light emitting device (109), modulation circuitry (speech coding and pulse shaper) operable to convert the audio signal to one or more constant width electrical pulses to drive the infrared light emitting diode (106) to transmit one or more corresponding constant width infrared pulses (figure 1), and a transmitter housing enclosing the microphone and modulation circuitry and upon which the at least one infrared light emitting device is mounted,

Art Unit: 2684

wherein the transmitter housing is coupled to the communication apparatus such that the microphone is positioned adjacent the sound output device of the communication apparatus (3 of figure 4A), and a speaker ((201), demodulation circuitry (speech decoding ) operable to convert the one or more electric signals (infrared signals) representative of the detected infrared pulses to an audio signal to power the speaker to produce a sound output,(earphone) and a receiver housing enclosing the speaker and the demodulation circuitry and upon which the infrared light detection device is mounted (206) wherein the receiver housing is formed to be self-supported entirely by the ear of a user (figure 4B and column 6, line 60-column 8, line 30). Sulavuori does not expressly disclose an infrared receiver apparatus (4B), wherein the infrared receiver apparatus comprises: an infrared light detection device to detect the one or more corresponding infrared pulses and generate one or more electric signals representative of the detected infrared pulses. However, Holakovszky teaches an infrared receiver apparatus, wherein the infrared receiver apparatus comprises: an infrared light detection device to detect the one or more corresponding infrared pulses and generate one or more electric signals representative of the detected infrared pulses (page 9, lines 16-24 and figure 5). Since , Strohallen indicates headset receives infrared (column 6, lines 25-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Strohallen and Holakovszky in receiving infrared signal at the headset , as taught by Holakovszky, in order to retrieve the audio signal transmit in infrared and demodulate to audio for hearing by the user.

Art Unit: 2684

As to claim 6, Sulavuori discloses the receiver housing (figure 4B) comprises an in the ear receiver housing securable within the concha of the ear (earphone 201) (figure 4B and column 8, lines 3-9).

As to claim 7, Sulavuori discloses. the receiver housing comprises a behind the ear receiver (201) housing securable by the pinna of the ear ( earphone is considered that a speaker secures ear and converts audio signal to hearable sound, col.8,lines 3-8 and figure 4B)

As to claim 8, Sulavuori discloses the receiver housing (4) comprises: a first portion including a behind the ear element and a speaker holding element having an opening defined there through, wherein the speaker holding element includes speaker contacts; and a second portion encompassing the speaker, wherein second portion is sized to be retained within the opening and includes speaker contacts for mating with the speaker contacts of the speaker holding element (the earphone that Sulavuori discloses has all the feature the conventional earphone includes.) .

As to claim 14, Sulavuouri discloses the transmitter apparatus further comprises a sound activated power circuit to power one or more components of the transmitter upon detection of sound input (figure 4)

As to claim 15-16, Sulabuouri discloses the one or more constant width electrical pulses to drive the infrared light emitting device are less than about 2 microsecond in duration (column 6, lines 45-48).

As to claim 28 Strohallen discloses a portable infrared receiver apparatus (low power cordless headset 400), comprising: Strohallen discloses a RF or infrared receiver

Art Unit: 2684

capable of receiving TVM signals from the headset (abstract) an infrared light detection device (62) to detect one or more infrared pulses and generate one or more electric signals representative of the detected infrared pulses (figure 7 and column 18, lines 7-19), a speaker (30 of figure 1), demodulation circuitry (26) operable to convert the one or more electric signals representative of the detected infrared pulses to an audio signal to power the speaker to produce a sound output, wherein the demodulation circuitry (figure 1 and column 12, lines 38-60) comprises: pulse detection circuitry (138) to convert the one or more electrical signals representative of the detected infrared pulses to one or more constant width pulses based thereon (column 23, lines 54-column 24 , line 12 and figure 15), pulse width converter circuitry convert the one or more constant width pulses to one or more width modulated pulses (figure 15 and 14B and C), and pulse width modulation circuitry (140 and 142) to convert the one or more width modulated pulses to an audio signal for application to the speaker (figure 15 and column 23, lines 54-column 24 , line 12), and a receiver housing enclosing the speaker and the demodulation circuitry (142) and is mounted, wherein the receiver housing is formed to be self supported entirely by the ear of a user (400 cordless headset that has the capability of self supporting ear to the user).

Strohallen does not expressly teach the headset receiver is infrared light detection device. However, Holakovszky teaches headset receiver (10 and 13 of figure 5) is infrared light detection device (page 9, lines 16-24 and figure 5). Since , Strohallen indicates headset receives infrared (column 6, lines 25-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to

Art Unit: 2684

combine Strohallen and Holakovszky in receiving infrared signal at the headset , as taught by Holakovszky, in order to retrieve the audio signal transmit in infrared and demodulate to audio for hearing by the user..

As to claims 29, Strohallen discloses cordless headset 400 that teaches all elements an in the ear receiver housing securable within the concha of the ear, and further wherein the receiver housing includes: a speaker portion enclosing the speaker and a power source, the speaker portion having a compactable/expandable material about at least a portion thereof to support the receiver housing; in the concha of the ear, wherein the material is placed in a compacted state upon insertion in the concha of the ear and further wherein the material expands to an expanded state to hold the receiver housing in the concha of the ear upon release from the compacted state, and an elongated portion extending from the speaker portion enclosing at least a portion of the demodulation circuitry, wherein the infrared light detection device is positioned on the elongated portion (figure 27).

As to claims 30-31 Strohallen discloses. the receiver housing comprises a behind the ear receiver housing securable by the pinna of the ear, and further wherein the receiver housing includes: a first portion comprising: a behind the ear element to secure the receiver housing by the pinna of the ear, and a speaker holding element extending from the behind the ear element, wherein the speaker holding element has an opening defined there through, and further wherein the speaker holding element includes speaker contacts; and a second portion encompassing the speaker, wherein second portion is sized to be retained within the opening and includes speaker contacts for

Art Unit: 2684

mating with the speaker contacts of the speaker holding element (column 1, lines 45-58 and figure 27).

As to claim 32, Strohallen discloses the demodulation circuitry comprises: pulse detection circuitry to convert the one or more electrical signals representative of the detected infrared pulses to one or more constant width pulses based thereon; pulse width converter circuitry to converter the one or more constant width pulses to one or more width modulated pulses; and pulse width modulation circuitry to convert the one or more width modulated pulses to an audio signal for application to the speaker (column 23, lines 54-column 24 , line 12 and figure 15).

As to claims 33-34, Strohallen discloses the pulse detection circuitry comprises: a amplifier configuration to provide symmetrically opposed polarity electrical pulses corresponding to each of the one or more electrical signals representative of the detected infrared pulses; and a comparator to generate a constant width pulse each time the symmetrically opposed polarity electrical pulses are applied hereto (figure 18)

As to claim 35, Strohallen discloses. the receiver further comprises missing pulse detection circuitry comprising: detection circuitry to detect the absence. of constant width pulses; and disable circuitry to disable one or more components of the receiver upon detection of such absence of constant width pulses (figure 15 and it's disclosure).

4. Claims 9-10-11,13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sulavuori et al (5,636,264)"Sulavuori" in view of May (5,446,783) and further in view of Strohallen et al (5,568,516).



Art Unit: 2684

As to claims 9-10,11,13 , Sulavuori and May do not specifically teach demodulation circuitry (speech decoding) comprises: pulse detection circuitry to convert the one or more electrical signals representative of the detected infrared pulses to one or more constant width pulses based thereon; pulse width converter circuitry to convert the one or more constant width pulses to one or more width modulated pulses; and pulse width modulation circuitry to convert the one or more width modulated pulses to an audio signal for application to the speaker. However, Strohallen teaches demodulation circuitry (142)comprises: pulse detection circuitry to convert the one or more electrical signals representative of the detected infrared pulses to one or more constant width pulses based thereon; pulse width converter circuitry (138) to convert the one or more constant width pulses to one or more width modulated pulses; and pulse width modulation circuitry to convert the one or more width modulated pulses to an audio signal for application to the speaker (column 23, line 54-column 24, line 20 and figure 15). Since, Strohallen, with the same field endeavor, teaches infrared modulated pulse detecting and demodulate to signal applicable to be transducer at the speaker. Then, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to improve Sulavuori and May in converting the modulated pulse to electronic signal , as taught by Strohallen, in order to the speaker transducer to audible signal or sound.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1,3,6-16,28-35 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lucey (6,421,426) discloses a wireless remote telephone, which communicates via infrared link to a stationary relaying device (figure 1 and column 2 lines 37-47).

Strohallen '791, discloses infrared communication cordless system (figure 27 and abstract).

GB 2355893 (Rogaiski) discloses a cordless headset 100, communicates with a handset 200 through infrared signals and with the base unit 300 via a wireless link, the infrared receiver may be mounted facing towards the front of the headset (abstract).

EP 613320 (Abe) discloses in a wireless headphone (2) in which an infrared signal transmitted from a transmitting apparatus (1) is received and a received output is reproduced as an audible sound by headphone unit portions(11,12), see abstract.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tilahun B Gesesse whose telephone number is 703-308-5873. The examiner can normally be reached on flex.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2684

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TBG

Art unit 2684

  
**TILANUN GESESSE**  
**PATENT EXAMINER**

May 18, 2004